

REMARKS

Reconsideration of the above-identified patent application in view of the following amendments and remarks is respectfully requested. Claims 1-26 are pending in this application. Claims 15-18 have been withdrawn. Claims 1-14 have been rejected under 35 U.S.C. 102. Claims 1, 3, 4, 5, 6 and 8 have been amended. New claims 19-26 have been added.

Independent claim 1 and claims 2-14 dependent therefrom are directed to a pressure-pulse therapy apparatus, comprising a pressure-pulse source and a disk-like acoustic lens, having a center section formed to direct a pressure pulse generated by the pressure-pulse source to form a first subordinate pressure pulse of a compound pressure pulse and a plurality of ring sections formed to direct a pressure pulse generated by the pressure-pulse source to form a plurality of subordinate pressure pulses of the compound pressure pulse.

Independent claim 19 as well as claims 20-26 dependent therefrom are directed to a device for producing an intracorporeal pressure pulse, comprising a pressure pulse source configured to generate a collimated pressure pulse and an acoustic lens including at least one ring-shaped focusing section configured to focus a pressure pulse generated by the pressure pulse source substantially to the central axis of the ring-shaped focusing section.

Specification Amendments

The Examiner has requested that Applicant update the status of the continuation data. Applicant has added a new paragraph with the updated continuation data.

The Examiner has pointed out an inadvertent typographical error on the third paragraph of page 19. Applicant has amended the typographical error.

The Examiner has objected to the Abstract as not being directed to the claimed invention. Applicant has provided a replacement Abstract.

Claims Amendments

Applicant has amended claims 1 and 3-6 by rearranging the limitations of the claims.

Applicant has amended claim 8 by replacing the word "*reflect*" with "*refract*".

Further, Applicant has added new claims 19 – 26. Support for the new claims is found in the specification. Specifically support for claims 19, 20, 22, 23 and 26 is found, *inter alia*, in Figure 7. Support for claims 21, 24 and 25 is found, *inter alia*, in paragraph 136 on page 21.

In the claim amendments, no new matter has been added.

Claim Objections

The Examiner has objected to claims 1 and 3-6 due to informalities.

Regarding claim 1, it is unclear to the Examiner what structure the sides as set forth in line 15 are referring to. As becomes clear upon reading the original claim 1 in its entirety, the proximal side is the face of the disk-like acoustic lens placed towards a tissue when the apparatus is used while the distal side is the face of the disk-like acoustic lens placed away from a tissue when the apparatus is used. That said, claim 1 has been amended so that the relative arrangement of the various components is clear.

Regarding claims 3-6, it is unclear to the Examiner as to how curvatures and focusing characteristics included the cited features. That said, claims 3-6 have been amended so that there is no lack of clarity as to what is claimed.

35 U.S.C. 103 Rejections – US 5,873,845 (Cline et al.)

The Examiner has rejected Claims 1-14 under 35 U.S.C. 103(a) as being unpatentable over US 5,873,845 (Cline *et al.*). Applicant traverses this rejection.

Cline *et al.* teaches a device for heating tissue comprising a bowl-shaped ultrasonic transducer which generates a beam of sonic energy (column 3, lines 26-29) that is small and concentrated (column 3, line 36) provided with a beam diffuser, such as a refraction plate 410 or a shell lens 600, that increases the diameter of the beam (column 3, line 45).

The rejected claims all relate to a pressure-pulse device including a pressure pulse source and a disk-like acoustic lens having different sections to separate a primary pressure pulse produced by the pressure pulse source into at least two subordinate pressure pulses.

Cline *et al.* relates to an invention for increasing the diameter of a sonic beam so that the energy of the beam will effectively heat a larger volume. In contrast, the claims of the instant application relate to a device for focusing a pressure pulse so that the energy of the pulse will be more concentrated, an event of short duration that applies force with little if any heating to an affected area. Thus, Cline *et al.* relating to low energy sonic beams for heating and the claims of the invention relating to short duration high intensity pressure pulses belong to different fields of invention.

For the claims to be rejected under 35 U.S.C. 103(a), three basic criteria must be met.

Motivation

The first criterion is that there must be some suggestion or motivation to modify Cline *et al.* to teach the claims of the present invention. Cline *et al.* teaches an ultrasound beam diffuser. Applicant has not found any suggestion in Cline *et al.* to apply the teachings of Cline *et al.* to any field but that of ultrasonic heating of tissue. The claims of the present invention are directed to the spatial concentration of a pressure pulse as discussed on page 2 paragraph 6 of the Specification "*it would be desirable to direct more of the pressure-pulse energy at the region for treatment*". At best, an ultrasonic beam diffuser such as taught by Cline *et al.* would achieve an opposite effect.

Expectation of Success

The second criterion is that there must be some reasonable expectation of success. It might be expected the application of the ultrasonic beam diffuser of Cline *et al.* to the field of pulse-pressure therapy would successfully diffuse a generated pressure pulse. However as this is an undesired result, one of average skill in the art

would be directed away from applying the teachings of Cline *et al.* to the field of pulse-pressure therapy.

Claims Limitations

The final criterion is that Cline *et al.* must teach or suggest all the limitations of the claims. Cline *et al.* does not teach or suggest all the limitations.

A component of an apparatus of the instant application is a pressure-pulse source, a device that produces a high-amplitude short-duration pressure pulse. Cline *et al.* does not teach a pressure-pulse source but rather an ultrasound transponder that produces a low-amplitude long-duration beam of sonic energy at ultrasonic frequencies.

A component of an apparatus of the present invention is a disk-like acoustic lens including a plurality of ring sections configured to divide a single pressure pulse into at least two pressure pulses. Cline *et al.* teaches two components that effect the propagation of a sonic beam produced by an ultrasound transponder, neither being a disk-like acoustic lens including a plurality of ring sections. A first component taught by Cline *et al.* is refraction plate 410 that does not include a plurality of ring section but rather includes a plurality of protrusions, (column 4, lines 46-55). A second component taught by Cline *et al.* is a phased shell lens 600 that does not include a plurality of ring section but rather is a hollowed out spherical structure (column 6, line 44-53), apparently modeled on a Luneburg Lenses.

Thus, Cline *et al.* teaches neither a pressure-pulse source nor an acoustic lens including a plurality of ring sections.

Applicant posits that not one of the three basic criteria for the claims to be rejected under 35 U.S.C. 103(a) are met. It is therefore Applicant's opinion that the differences between the teachings of Cline *et al.* and rejected Claims 1-14 are not such that Claims 1-14 would be obvious to one of ordinary skill in the art. Applicant therefore believes that Claim 1-14 describe novel and non-obvious subject matter that is neither anticipated nor obvious from Cline *et al.* Since Claims 1-14 are of a device that is neither anticipated by nor obvious in light of the art, Claims 1-14 are in condition for allowance. Further, Applicant believes that new claims 19-26 are also in condition for allowance.

Applicant respectfully requests that a timely Notice of Allowance be issued in this case.

Respectfully Submitted,

A handwritten signature in cursive script, reading "Martin O. Moynihan".

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Enclosed:

Amendment Transmittal